

What You Should Know About Bioterrorism Preparedness and Response

What is terrorism?

Terrorism is the unlawful use of force against people or property in an effort to intimidate or coerce a government and its population in the furtherance of political or social objectives.

What is bioterrorism?

Bioterrorism is a terrorist activity that involves the intentional release of a microbiological agent, either a bacteria or a virus, into the environment. Bioterrorism is the overt or covert dispensing of disease pathogens by individuals, groups, or governments for the expressed purpose of causing harm for ideological, political, or financial gain.

What are biological weapons (BW)?

Biological weapons (BW) are any infectious agent such as a bacteria or virus when used intentionally to inflict harm upon others. This definition is often expanded to include biologically derived toxins and poisons. Biological warfare agents include both living microorganisms (bacteria, protozoa, viruses, and fungi), and toxins (chemicals) produced by microorganisms, plants, or animals. Some of these agents are highly lethal; others would serve mainly in an incapacitating role.

Are biological weapons dangerous?

Biological weapons are immensely destructive. In the right environment they can multiply, and so self-perpetuate. And they can naturally mutate, frustrating protective measures. Chemical weapons, for all their horrors, become less lethal as they are dispersed and diluted. But even the tiniest quantities of disease organisms can be lethal.

How can I tell a bioterrorist attack from a 'natural' outbreak?

A BW agent attack is likely to be covert. Thus, detection of such an attack requires recognition of the clinical syndromes associated with various BW agents. Physicians must be able to identify early victims and recognize patterns of disease. This requires integrated epidemiological surveillance systems performing real-time monitoring with information shared at many levels of the health care system. Preliminary criteria for suspicious outbreaks of disease that could provide indications of a possible biological weapons event include the following:

- Disease (or strain) not endemic
- Unusual antibiotic resistance pattern
- Atypical clinical presentation
- Case distribution geographically and/or temporally inconsistent (i.e., compressed time course)

Other inconstant elements include:

- Number of cases
 - Mortality and morbidity rates
 - Deviations from disease occurrence baseline.
- (Source: eMedicine.com, Inc)

How contagious are these pathogens?

Of the potential BW agents, only plague, smallpox, and viral hemorrhagic fevers are spread readily person to person by aerosol and require more than standard infection control precautions (gown, mask with eye shield, gloves). Regardless, as a precaution all potential victims of BW agents should be placed in isolation. Medical personnel caring for these patients should wear a HEPA mask in addition to standard precautions pending the results of a more complete evaluation.

(Source: eMedicine.com, Inc)

How was Memphis and Shelby County preparing for a potential biological terrorist attack before September 11, 2001?

Since 1998, Memphis and Shelby County has been working with local, state, federal agencies in developing and implementing Weapons of Mass Destruction (WMD) Response Preparedness Plan. This plan incorporates:

- Capacity Building
- Training
- Acquisition and maintenance prophylactic medications.

Our Public Health WMD Response Plan hinges on four components:

- Rapid detection of a bioterrorist incident, identification of the agent and determination of community risk. To better meet this responsibility, Memphis and Shelby County Health Department's Laboratory is currently being upgraded to a Level B Laboratory. Completion of the renovation is expected by February 2002, and at that time our local public health lab will be able to identify and confirm specific biological agents and will be able to perform susceptibility tests.
- Coordinated Communication between providers and agencies and to the community through the designated communication officer.
- Maintenance and distribution of a cache of chemo-prophylactic drugs: Antibiotics and antimicrobials to be used for persons exposed to a biological agent.
- Effective deployment of health resources (supplies, equipment, pharmaceuticals, manpower and beds) in the event of an incident.

With the approval of our plan by the U.S. Department of Health and Human Services, the Health Department began working with Memphis and Shelby County Emergency Management Agency (EMA) to assure its integration into the community's full plan. We have also been coordinating with hospitals, clinics, and private physicians to raise the level of awareness of the potential threat of a bioterroristic incident. In add addition, we are developing and organizing professional training and workshop sessions for health-care providers focusing on the medical management of biological casualties.

As a result of our planning efforts it has been said that Shelby County is more prepared than any other city in Tennessee to respond to bioterrorism and our level of readiness is comparable to most other large metropolitan areas in America.

We will continue to refine our plans and enhance our training in an effort to assure that we are prepared to respond swiftly and appropriately to any bioterroristic incident in Shelby County.

Does Memphis currently have the laboratory capacity to safely identify bioterrorism agents submitted for testing?

Currently the state's Public Health and Environmental Laboratory in Jackson has the staff and capability to make rapid and accurate diagnostic testing for disease organisms such as those causing anthrax and plague. Over the last year the Memphis and Shelby County Health Department's Laboratory has been under renovation and conversion to a Level B laboratory for specialized bio-containment testing. By February 2002 the health department lab will be operational and able to test for bioterrorism agents. Through both work experience and attendance at workshops presented at the CDC, qualified health department staff is capable of performing tests for identifying a number of potential bioterrorism agents.

What impact has the focus on bioterrorism had on our more routine disease surveillance activities?

Through the expanded surveillance and communication system, public health officials can receive more timely information and determine if an outbreak of food borne illness, or the emergence of an antibiotic-resistant organism in a hospital is a local or more widespread problem

Is there any evidence of a recent widespread biological release in Memphis or in other areas of Tennessee?

As of the posting of this information there is no evidence of release of anthrax in Memphis or in any area of Tennessee.

Should I buy a gas mask?

No. A mask would only protect you if you were wearing it at the exact moment a bioterrorist attack occurred. Unfortunately, a release of a biological agent is most likely to be done "covertly," that is, without anyone knowing it. That means you would not know ahead of time to put on your mask. To wear a mask continuously or "just in case" a bioterrorist attack occurs, is impractical, if not impossible.

To work effectively, masks must be specially fitted to the wearer, and wearers must be trained in their use. This is usually done for the military and for workers in industries and laboratories who face routine exposure to chemicals and germs on the job. Gas masks purchased at an Army surplus store or off the Internet carry no guarantees that they will work. In fact, one national chain of surplus stores provides the following statement: "(X) has been selling gas masks as a novelty item since 1948. We have never been able to warrant their effectiveness and we cannot do so at this time. We do not know what each type of gas mask we sell might or might not be effective against. We do not know the age of each gas mask."

In brief, no guarantees whatsoever are provided. More serious is the fact that the masks can be dangerous. There are reports of accidental suffocation when people have worn masks incorrectly, as happened to some Israeli civilians during the Persian Gulf War.

Should I have my own supply of antibiotics?

There are a number of different germs a bioterrorist might use to carry out an attack. Many antibiotics are effective for a variety of diseases, but there is no antibiotic that is effective against all diseases. Thus, no single pill can protect against all types of biological weapon attacks. Keeping a supply of antibiotics on hand poses other problems because the antibiotics have a limited "shelf life" before they lose their strength.

There is currently no justification for taking antibiotics. Also, it should be known that antibiotics can cause side effects. They should only be taken with medical supervision.

Is it safe for me to drink water from the tap?

It would be extremely difficult for a bioterrorist to contaminate our drinking water supplies to cause widespread illness. There are two reasons. First of all, huge amounts of water are pumped daily from underground aquifers and anything deliberately put into the water supply would be greatly diluted. Secondly, water treatment facilities routinely filter the water supply and add chlorine in order to kill harmful germs.

What is smallpox?

Smallpox is a disease caused by the Variola virus. Historically, one out of three people who contracted the disease died. The disease can spread from person to person. Transmission usually occurs only after the patient develops a fever and rash. Although there is no treatment for the disease, a vaccine against smallpox provides excellent protection and serves to stop the spread of the disease. While many vaccines must be given weeks or months before a person is exposed to infection, smallpox vaccine is different. It protects a person even when given two to three days after exposure to the disease and may prevent a fatal outcome even when given as late as four to five days after exposure.

Smallpox was stamped out globally by 1980 and vaccination stopped everywhere in the world. However, the Centers for Disease Control and Prevention (CDC) maintain an emergency supply of smallpox vaccine. Currently there are 12-15 million doses in storage, and a program to produce more vaccine began a year ago. For more information on smallpox, go to [Johns Hopkins Center for Civilian Biodefense Studies](#) or [CDC's bioterrorism web site](#).

If smallpox is a potential threat to the U.S., why shouldn't we all get vaccinated?

The vaccine may cause serious side effects. In 1972, the U.S. decided to stop routinely vaccinating its citizens because many people were experiencing side effects, while they had almost no risk of getting smallpox. By 1972, the disease was present only in a few countries of Asia and Africa. Today, health authorities would only recommend vaccination if there was clear evidence that the disease had resurfaced and those in the U.S. were at risk of acquiring infection.

Many people over age 30 have a vaccination scar. Vaccination consists of introducing the virus into the top layers of the skin. Over the following few days, a blister forms at the site of vaccination (usually the upper arm). The arm is sore, and there is fever. Very rarely, some people get a vaccine-related infection of the brain (about 1 case per 300,000 vaccinations); one fourth of these cases are fatal. Other potential negative effects of the vaccine are a severe skin reaction, spread of the vaccine virus (known as Vaccinia) to other parts of the body, and spread of the Vaccinia virus to other people.

If I was vaccinated against smallpox before 1980, am I still protected?

Probably not. Vaccination has been shown to wear off in most people after 10 years but may last longer if the person has been successfully vaccinated on multiple occasions. If health authorities determine that you have been exposed to smallpox or are at risk of infection, they would recommend that you be re-vaccinated immediately.

What is anthrax?

Anthrax is a disease caused by bacteria called *Bacillus anthracis*. The form of the disease that health authorities are concerned that a bioterrorist attack might produce is inhalational anthrax. Inhalational anthrax occurs when a person breathes in anthrax spores. As early as a day or two after exposure or as late as seven weeks afterward, the spores begin to grow rapidly and the victim develops fever, has difficulty breathing and feels miserable. Death

typically occurs within a few days after these symptoms if the person doesn't receive medical treatment. It is believed that antibiotics can stop the disease if they are taken at the time the anthrax spores begin to grow or very soon thereafter.

In the event of a bioterrorist attack, health authorities would conduct a rapid investigation, determine the place and time of the release, and identify individuals who need antibiotics. The federal government has stockpiled antibiotics for large-scale distribution in the event of a bioterrorist attack. [Additional information on anthrax.](#)

Is anthrax contagious?

No. Anthrax is not contagious. It does not spread from person to person. Healthy people who come into contact with persons sick with anthrax cannot acquire the disease. (Click [HERE](#) to see additional frequently asked questions about anthrax.)

What is the National Pharmaceutical Stockpile (NPS)?

The NPS is a large reserve of antibiotics, chemical antidotes and other medical supplies set aside for emergencies. The CDC reports that it has the capacity to move these stockpiled materials to affected areas in the U.S. within 12 hours of notification. There are a number of different stockpiles, strategically located around the country. In addition to the medical supplies already set aside, the federal government has made agreements with drug manufacturers to make large amounts of additional emergency medicine. [Additional information on the NPS.](#)

What can I do to protect my family and myself?

Unfortunately, there is presently little that individuals can do in advance to protect themselves from a bioterrorist attack. However, there is much that government agencies, health care institutions and public health departments can and should be doing to improve the capacity to protect the public following a bioterrorist attack. Medical institutions and public health agencies, in particular, have not received adequate attention and resources to cope with disasters like bioterrorism. [Additional information.](#)

You can express your concern regarding adequate protections against the potential threat of bioterrorism to your local leaders. In each area, local health departments have an important responsibility for helping protect your community against outbreaks of infectious disease, whether they occur in nature or because of a malicious terrorist act. They can assist you with additional bioterrorism-related concerns that are pertinent to your own community.

What if my fear about bioterrorism is having a serious impact on my family and work life?

Given the attacks upon civilians that took place on September 11, it is reasonable for citizens to feel anxious about their personal safety. Should your fear get to the point that it stops you from doing the things you would normally do in a day, it might be helpful to talk with someone. Your health care provider can make a referral if you do not already have someone in mind. In the wake of the attack on New York City, we have learned how helpful it has been to many New Yorkers to speak with a counselor or to go to a mental health center.

Portions of this fact sheet are courtesy of The Johns Hopkins Center for Civilian Biodefense Studies.